

REMARKS/ARGUMENTS

Claim 11 has been amended by this Amendment. Claims 1-10 have been previously withdrawn. Claims 11-22 are currently pending in the application, are rejected, and are at issue.

Amendments to the Specification

The Examiner has objected to the Abstract for improper language. The Examiner has required Applicants to delete the phrase "is described" from the Abstract. In response, Applicants have made the Examiner's required change to the Abstract, and have also made additional changes to better clarify the invention described therein. Accordingly, Applicants submit that the Examiner's objections have been overcome, and respectfully request withdrawal thereof.

§ 112 Claim Rejections - Claim 21

Claim 21 stands rejected under § 112, second paragraph, as being indefinite. The Examiner has indicated that the phrase "the liquid mixture" found at lines 2-3 lacks a prior antecedent basis. In response, Applicants have amended claim 11, from which claim 21 depends, to include the proper antecedent basis for the phrase identified by the Examiner. Accordingly, Applicants submit that the Examiner's rejection has been overcome, and respectfully request withdrawal thereof.

§ 103 Claim Rejection - Claims 11-16 and 18-22

Claims 11-16 and 18-22 stand rejected under § 103(a) as obvious over U.S. Patent No. 3,473,075 to Hawes, Jr. et al. ("Hawes") in view of WIPO Publication No. WO 93/10667 to Vinci et al. ("Vinci"). Applicants respectfully traverse the Examiner's rejections for at least the following reasons.

Independent claim 11 recites a system for supplying amino acids or their chemical derivatives in liquid form to ruminant livestock, the system comprising, *inter alia*:

- at least one device for measuring the flow of liquid connected to said line;
- at least one amino acid feeding device connected to said at least one container and to said liquid supply line; and
- at least one pump for injecting said amino acids into said liquid to produce a liquid mixture, wherein said pump is connected to said line.

Neither Hawes nor Vinci, taken alone or in combination, teach or suggest the above-identified limitations.

Hawes teaches mixing an additive in **dry particle form** with water for administration to livestock and poultry (*see e.g.*, claim 3, col. 15, ln. 1; claim 7, col. 15, ln. 55; claim 10, col. 16, ln. 35; claim 11, col. 16, lns. 54-56; col. 5, lns. 71-75). Since the additive of Hawes is provided in a dry particle form, such apparatus as a mixing tank, float valve, pressure tank and pressure sensing means are required in the system of Hawes. Such apparatus are not required in the present inventive system, since the inventive system is directed toward adding a liquid amino acid **directly into** the animals' water supply. Further, since Hawes is concerned with mixing a dry feed additive to a liquid, the Hawes system can only be operated on a batch system basis, *i.e.*, preparing a liquid blend from dry feed additives in a mixing tank, transferring the liquid into a pressure tank, and supplying the liquid blend to a feed trough. In contrast, the system of the present invention may operate on a **continuous basis**, supplying the liquid amino acids or their chemical derivatives directly into the animals' drinking water.

The Hawes apparatus of Fig. 9, which has been relied upon by the Examiner in rejecting the claims, includes a water source 110 supplying water to a mixing tank 106. The level of water

in the mixing tank 106 is controlled by a float valve 138 and float 140. Storage bins 104 are positioned above the mixing tank 140 and include the dry feed additives. A dispensing means 102 is positioned below the storage bins 104 and includes a rotatable dispensing rod 150. The dispensing rod 150 includes a plurality of openings, which, when aligned with the openings at the bottoms of the bins 104, allows the dry feed particles within the bins to fall into the mixing tank 106 via gravitational forces.

In Hawes, a nozzle 144 is provided in the mixing tank 106 so as to deliver water into the tank under a high pressure and turbulence to thereby promote intermixing of the dry additives with the water. After mixing, the Hawes mixture is provided to a pressure tank 116, where it is then delivered to the watering trough 100 under the control of a float valve 134 and float 136. The system of Hawes is clearly different than the present inventive system, which is expected since the considerations taken into account when mixing a dry feed additive with a liquid are different than when the additive is in liquid form.

In contrast, the present inventive system includes "at least one device for measuring the flow of liquid connected to said line". Hawes is devoid of this element. The Examiner cites the dispenser means 102 as a means for metering additives from the bins into the tank 106, and indicates that operation of the pump is dependent upon the liquid level in the tank 106 and hence the position of the float valve 138, 140. However, neither of these elements perform the same function as the recited measuring device.

The dispenser means 102 does not measure any type of flow therethrough. The dispenser means 102 simply includes a rod 150 with openings, which, when aligned with the openings at the bottom of the bins 104, allows dry feed particles to fall into the mixing tank 106. While aligning the holes for a preselect period of time may allow a certain quantity of dry feed particles

to fall into the mixing tank 106, the dispenser means 102 performs no measurement function. It is simply a mechanical device to allow feed particles to fall into the mixing tank 106. Only by looking into the storage bins 104 can one tell how much dry feed additive has been dispensed to the mixing tank 106. The float valve 138, 140 simply shuts the flow of water to the mixing tank 106 when the water in the tank reaches a certain level. In this regard, the float valve 138, 140 simply acts as an on/off valve and includes no measurement capabilities. An on/off valve is distinctly different than a device which measures the flow of liquid therethrough.

The recited measuring device in the present claims measures the flow of liquid in the line. In this regard, at any particular time an individual can access the recited measuring device and determine the amount of liquid that has flowed through the line. There is no device in Hawes that performs this function, and the Examiner has not indicated where any such device can be found in Hawes.

The present inventive system also includes "at least one amino acid feeding device connected to said at least one container and to said liquid supply line". The Examiner is of the opinion that it would have been obvious to employ at least one container of liquid amino acid with the bins 104 of Hawes in view of the teaching of Vinci. However, regardless of what is placed in the bins 104 of Hawes, there is still no teaching or suggestion in either Hawes, Vinci or any combination of the two of a feeding device connected to the container and to the liquid supply line, as recited in claim 11. If the Examiner equates the dispenser means 102 in Hawes with the recited feeding device, the dispenser means 102 in Hawes is **not** connected to the liquid supply line, but rather is operational with the mixing tank 106. Further, even if the combination proposed by the Examiner is made, Hawes includes no teaching or suggestion of how to incorporate a bin containing a liquid additive into its system. The only liquid in the Hawes

system is the water which is introduced into the mixing tank. The entire system of Hawes is directed toward delivering dry particles into the mixing tank, as the bins 104 and dispensing rod 150 operate using gravitational forces to allow the particles to fall into the mixing tank. Hawes includes no teaching or suggestion of how to dispense liquid from the bins 104, and the dispensing rod 150 is clearly not designed to dispense liquids. Additionally, even if the Examiner's proposed combination is made, there would still be no feeding device connected to the container and to the liquid supply line, as recited in claim 11.

The system of Hawes, as previously noted, can only be operated on a batch system basis using a mixing tank and a pressure tank. The batch system operation of Hawes is even more evident when considering Fig. 1, where the Hawes system is represented in parallel to the existing waterline. Thus, it is apparent that the feeding devices of Hawes are not connected to the supply line. In contrast, the inventive system discloses the use of an existing drinking water supply, and thus avoids a parallel supply system or a system which drastically impedes the flow of liquids.

Further, the present inventive system includes "at least one pump for injecting said amino acids into said liquid to produce a liquid mixture, wherein said pump is connected to said line". The Examiner appears to equate the claimed pump with a pump described in Hawes at col. 7, ln. 4. However, this pump is essentially the pump 12 described with respect to Fig. 1 of Hawes, which is provided in the waterline before the mixing tank, and is basically just used to pump the water through the waterline. In contrast, the pump recited in claim 11 is directed specifically toward "injecting said amino acids into said liquid to produce a liquid mixture". This limitation is structural in nature, as it denotes where the pump must be placed within the system. Clearly,

the pump 12 described with respect to Fig. 1 of Hawes is not utilized for injecting anything into the liquid stream and cannot be equated with the recited pump.

Accordingly, Applicants submit that independent claim 11, as amended, is allowable over Hawes and Vinci, either taken alone or in combination.

Claims 12-22 depend cognately from independent claim 11, recite further structural detail further delineating over the prior art, and are also believed allowable.

§ 103 Claim Rejections - Claim 17

Claim 17 stands rejected under § 103(a) over Hawes in view of Vinci as applied to claim 11, and further in view of U.S. Patent No. 6,199,512 to Jefferson et al. ("Jefferson"). Applicants respectfully traverse the Examiner's rejections for at least the following reasons.

The deficiencies of Hawes and Vinci as applied to independent claim 11 have been previously noted. Jefferson does not overcome these deficiencies. The Examiner alleges that it would have been obvious to one skilled in the art to replace the float valve 138, 140 of Hawes, as modified by Vinci, with the flow meter 36 of Jefferson in order to allow more precise amounts of water to be metered into the tank 106 of Hawes. The Examiner seems to equate the float valve 138, 140 with the flow meter 36 of Jefferson such that the two are interchangeable. Applicants respectfully disagree.

A float valve is not a flow meter. A float valve simply turns off the water flow when the amount of water in the tank reaches a certain level. A float valve does not keep any count or measure of the amount of water that has flowed through the valve, but only closes after the water reaches a certain level in the tank. Since the apparatus of Hawes uses various tanks, the levels in the tanks must be monitored simply so that they do not overflow. Simply replacing the float valve 138, 140 with a flow meter will not accomplish this task. The flow meter must not only

know how much water has flowed into the tank, but also how much water has flowed out in order to keep an accurate reading to ensure that the tank does not overflow. In contrast, the float valve simply shuts off the water flow to the tank when it reaches a certain level to prevent an overflow from the tank. The flow meter 36 of Jefferson, absent extensive modification to the Hawes system, which modification is neither disclosed nor suggested in any of the references, will not accomplish this task. Thus, replacing the float valve 138, 140 of Hawes with the flow meter 36 of Jefferson would render Hawes unworkable. It is well established that a modification that renders the primary reference unworkable for its intended purpose is improper. See In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Accordingly, Applicants submit that claim 17 is allowable over Hawes, Vinci and Jefferson, either taken alone or in combination.

Conclusion

In summary, none of the cited art teaches or suggests a system for supplying amino acids or other chemical derivatives in liquid form to ruminant livestock in general, yet alone the system claimed in the present application. Thus, for at least the above-identified reasons, Applicants submit that pending claims 11-22 are allowable over the references cited by the Examiner. Allowance and passage to issue are respectfully requested.

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It is believed that this Amendment requires no fee. However, if a fee is required for any reason, the Commissioner is hereby authorized to charge Deposit Account No. 02-4553 the necessary amount.

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Respectfully submitted,



Bryan H. Opalko

Registration No. 40,751

BUCHANAN INGERSOLL PC

One Oxford Centre

301 Grant Street, 20th Floor

Pittsburgh, Pennsylvania 15219

ph: (412) 562-1893

fx: (412) 562-1041

e-mail: opalkobh@bipc.com

Attorney for Applicant(s)